LUTRON ELECTRONICS CO., INC.

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Vice President

California Energy Commission
DOCKETED
14-BSTD-01
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Submitted via email: docket@energy.ca.gov

Mr. Andrew McAllister
Commissioner
California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Re: Docket No. 2014-BSTD-01

Lutron Electronics Co., Inc. comments on staff workshop on proposed residential lighting efficiency measures for the 2016 Title 24 Part 6 Energy Efficiency Standard.

Dear Commissioner McAllister,

Thank you for the opportunity to review and provide comments on the lighting proposals discussed during the CEC Pre-rulemaking Workshop on June 24, 2014. These comments are submitted on behalf of Lutron Electronics Co., Inc.

As you may know, Lutron was founded in 1961 and is headquartered in Coopersburg, Pennsylvania. From dimmers for the home, to lighting management systems for entire buildings, the company offers more than 17,000 energy-saving products, sold in more than 100 countries around the world. In the U.S. alone, Lutron products save an estimated 10 billion kWh of electricity, or approximately $1 billion in utility costs per year. The company's early inventions— including the first solid-state dimmer invented by Lutron's founder, Joel Spira—are now at the Smithsonian's National Museum of American History in Washington, DC.

Please find our detailed comments below. We look forward to working with you further on this important project. Please contact Michael Jouaneh at 610-282-5350 or mjouaneh@lutron.com if you have questions or would like more information on these comments. Thanks again for your consideration.

Respectfully submitted,

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The comments and suggested edits to the proposal are shown below as deleted text in ~~strikeout~~, and suggested new text in underline:

a. **150.0(k)1B Blank Electrical Boxes.** The total number of boxes should not be limited to number of bedrooms but rather the number of total rooms so that homeowners can install a ceiling fan or luminaire in these boxes for each room if desired. Thus, we suggest the following change:

> **150.0(k)1B Blank Electrical Boxes**. The number of electrical boxes that are more than 5 feet above the finish floor and do not contain a luminaire or other device shall be no greater than the number of ~~bed~~rooms. These electrical boxes must be served by a dimmer, ~~or~~ vacancy sensor, or fan speed control

b. **150.0(k)1C Recessed Luminaires in Ceilings**. The only reason mentioned during the meeting to eliminate screw-based lamps from recessed luminaires was heat issues. But GU-24 based luminaires would have the same heat issues yet they would be allowed. The standard should allow all screw-based JA-8 compliant lamps to comply whether they are in recessed fixtures or not especially since many of the requirements of JA-8 already address the heat and any rated life issues such as the requirement for a high elevated temperature light output ratio. Please take out this unfair screw-based restriction for recessed downlights. There are screw-based reflector lamps available that have been specifically designed to operate well in these luminaires. We suggest the following changes:

> **150(k)1C Recessed Luminaires in Ceilings.**
> v. Recessed luminaires shall ~~not use screw based lamps and~~ have a JA-8 compliant light source.
>
> **150(k)1G Screw based luminaires.** Screw based luminaires shall meet all the following requirements
> ~~i. the luminaires are not recessed luminaires~~
> ii. the luminaires contain lamps that comply with Joint Appendix JA-8 and
> iii. the installed lamps are labelled as compliant with JA-8.
>
> **Table 150.0A High Efficacy Light Sources.**
> 6. Luminaires containing lamps or light sources which comply with Reference Joint Appendix JA8 and the light sources are labelled as such. ~~Note that recessed luminaires shall not have screw bases regardless of lamp type as described in Section 150.0(k)1C.~~

c. **150.0(k)2J and 150.0(k)2K.** The next standard should require all luminaires in these non-living spaces to be on an energy-saving control, not just one luminaire in those spaces. If anything, it should be written the other way around so that only one luminaire can be uncontrolled. Also, a partial-ON occupant sensor should be allowed as they have been proven to save even more energy than vacancy sensors because occupants are usually satisfied with 50% of the lighting ON (see http://lightingcontrolsassociation.org/cltc-study-demonstrates-major-energy-savings-for-bilevel-occupancy-sensors/). Also, why is lighting in hallways exempt from controls? Hallways are a key space were lighting should be controlled beyond a standard switch. Lastly, bathrooms are ideal spaces for dimmers because different light levels are needed (e.g. low level at night, higher level for grooming, etc.) so the standard should allow a dimmer to be one of the complaint controls in this space especially since JA-8 complaint light sources will be dimmable. We suggest the following changes:

J. In Bathrooms, attached and detached Garages, Laundry Rooms, and Utility Rooms, ~~at least one~~ all luminaires in each of these spaces shall be controlled by a dimmer, vacancy sensor, or partial-on occupant sensor.

K. All screw based fixtures shall be controlled by a dimmer, ~~or~~ vacancy sensor~~.~~, or partial-on occupant sensor.

EXCEPTION 1 to Section 150.0(k)2K: Luminaires in closets less than 70 square feet.
~~EXCEPTION 2 to Section 150.0(k)2K: Luminaires in hallways.~~

d. **150.0(k)3 Residential Outdoor Lighting.** Landscape lighting is still not addressed. All exterior lighting should be controlled, not just the exterior lighting that is attached to a building. We suggest the following changes:

150(k)3A. For single-family residential buildings, outdoor lighting ~~permanently mounted to a residential building or other buildings on the same lot~~ shall meet all of the following requirements in item (i) and the requirements in either item (ii) or item (iii):

e. **Appendix JA-8 Qualifications for Residential Luminaires Using California High Quality, High Efficacy Light Sources.** We are concerned that there may not be enough qualifying high efficacy light sources. Some questions in this regard: Are there any qualifying high efficacy light sources that would replace the halogen MR-16? How are homeowners supposed to light up artwork or decorations? Will there be a high efficacy equivalent for low voltage track lighting? Are there enough compliant high efficacy light sources for use in chandeliers? A suggested way address this issue would be to allow pin-based or GU-10 based lamps that meet JA-8 efficacy requirements to be considered compliant high efficacy light sources. We suggest the following change:

Table 150.0-A High Efficacy Light Sources. ~~All~~ Pin-based and GU-10 based lamps that meet the efficacy requirements of Table JA-8 High Efficacy Qualification Requirements.

f. Also, a key correction noted below for Appendix JA8:

(i) Light source shall have start time no ~~less~~more than 0.3 seconds as tested according to the requirements in Title 20.